

CLAIMS

What is claimed is:

1. An apparatus for extracting bodily fluid, the apparatus comprising:
 - a housing;
 - a lancing mechanism for lancing a target site attached to the housing;
 - a clamping mechanism attached to the housing, the clamping mechanism including:
 - a lower arm assembly; and
 - an upper arm assembly;

wherein the lower arm assembly and upper arm assembly are operatively connected such that when a user's finger applies a predetermined user force to the lower arm assembly, the lower arm assembly is displaced from a first position to a second position and the upper arm assembly and lower arm assembly cooperate to engage the user's finger with a compressive force that is greater than the predetermined user force; and

wherein the lancing mechanism is configured to lance a target site on the user's finger while the upper arm assembly and lower arm assembly are cooperating to engage the user's finger, whereafter the compressive force serves to extract a bodily fluid sample from the lanced target site.
2. The apparatus of claim 1, wherein the lower arm assembly and upper arm assembly cooperate via mechanical advantage to engage the user's finger with the compressive force.
3. The apparatus of claim 1, wherein the clamping mechanism is pivotally attached to the housing and configured for one-handed operation of the apparatus.
4. The apparatus of claim 1, wherein the lower arm assembly includes a pressure ring and the upper arm assembly includes a compression surface and wherein the pressure ring and compression surface cooperate to engage the user's finger with the compressive force.

5. The apparatus of claim 1 further including means for limiting the compressive force.

6. The apparatus of claim 5, wherein the means for limiting the compressive force includes:

a force limiting arm; and

a force limiting spring,

wherein the force limiting arm and force limiting spring are operatively connected to limit the compressive force.

7. The apparatus of claim 5, wherein the means for limiting the compressive force includes:

an adjustment screw; and

a force limiting spring,

wherein the adjustment screw and force limiting spring are operatively connected to limit the compressive force.

8. The apparatus of claim 1, wherein apparatus further includes a linking arm and the lower arm assembly and upper arm assembly are operatively connected by the linking arm.

9. The apparatus of claim 1, wherein the predetermined force is less than approximately 6N and the compressive force is between 9N and 18N.

10. An apparatus for extracting bodily fluid, the apparatus comprising:

a housing with a lower compression surface;

a lancing mechanism for lancing a target site attached to the housing;

a clamping mechanism attached to the housing, the clamping mechanism including:

a lever; and

an inner compression surface operatively aligned with the lower compression surface,

wherein the housing and clamping mechanism are operatively connected such that a user's finger inserted between the upper compression surface and inner compression surface is engaged with a compressive force when the lever and housing are squeezed together.

11. The apparatus of claim 10 further including a trigger release, wherein the trigger release is configured to activate the lancing mechanism when the lever and housing are squeezed together.

12. The apparatus of claim 10, wherein lever arm and housing cooperate via mechanical advantage to produce the compressive force.

13. A method for extracting bodily fluid from a target site, the method comprising:
providing an apparatus for extracting bodily fluid including:

a housing;

a lancing mechanism for lancing a target site attached to the housing;

a clamping mechanism attached to the housing, the clamping
mechanism including:

a lower arm assembly; and

an upper arm assembly;

applying a predetermined force to the lower arm assembly with a user's finger such that the lower arm assembly is displaced from a first position to a second position and the upper arm assembly and lower arm assembly cooperate to engage the user's finger with a compressive force that is greater than the predetermined user force; and

lancing a target site on the user's finger while the upper arm assembly and lower arm assembly are cooperating to engage the user's finger, whereafter the compressive force serves to extract a bodily fluid sample from the lanced target site.

14. The method of claim 13, wherein the providing step further includes providing an apparatus for extracting bodily fluid that also includes means for limiting the compressive force and the applying step further includes the means for limiting the compressive force acting to limit the compressive force.